Figure 41. Active waterfowl hunters and fall/winter sea duck sport harvest in Alaska 1971-97. (ADF&G data)

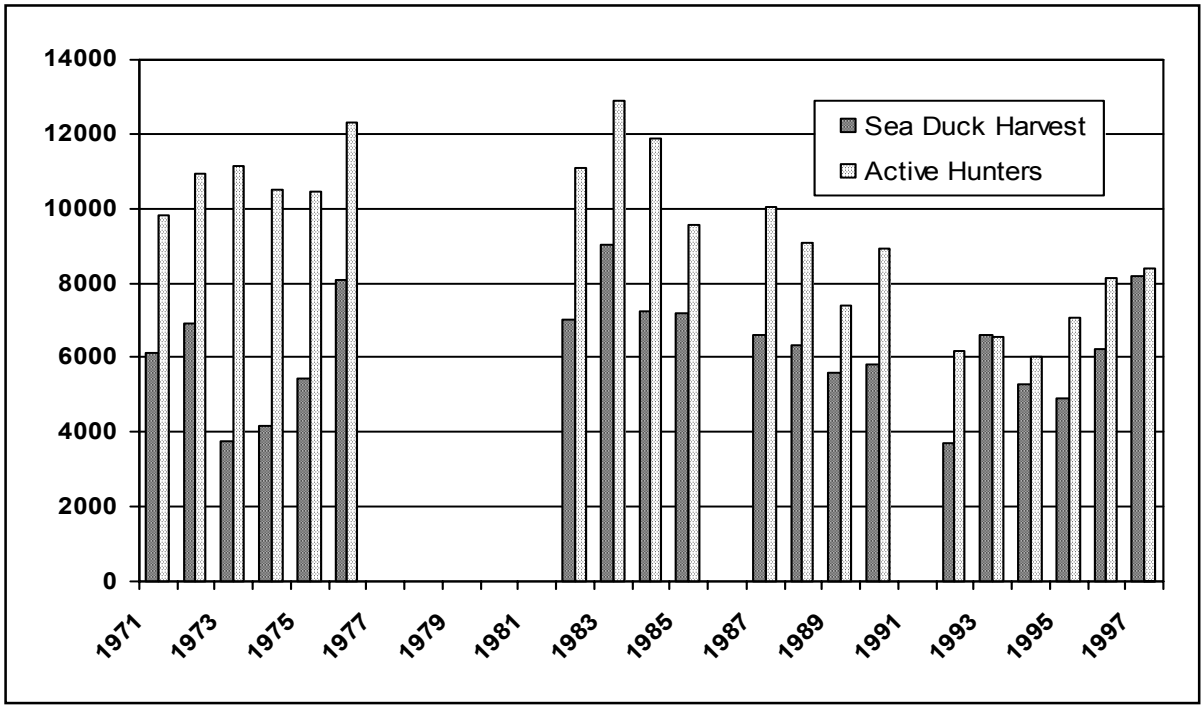


Figure 42. Fall/winter sea duck sport harvest averaged per active waterfowl hunter in Alaska. (ADF&G data)

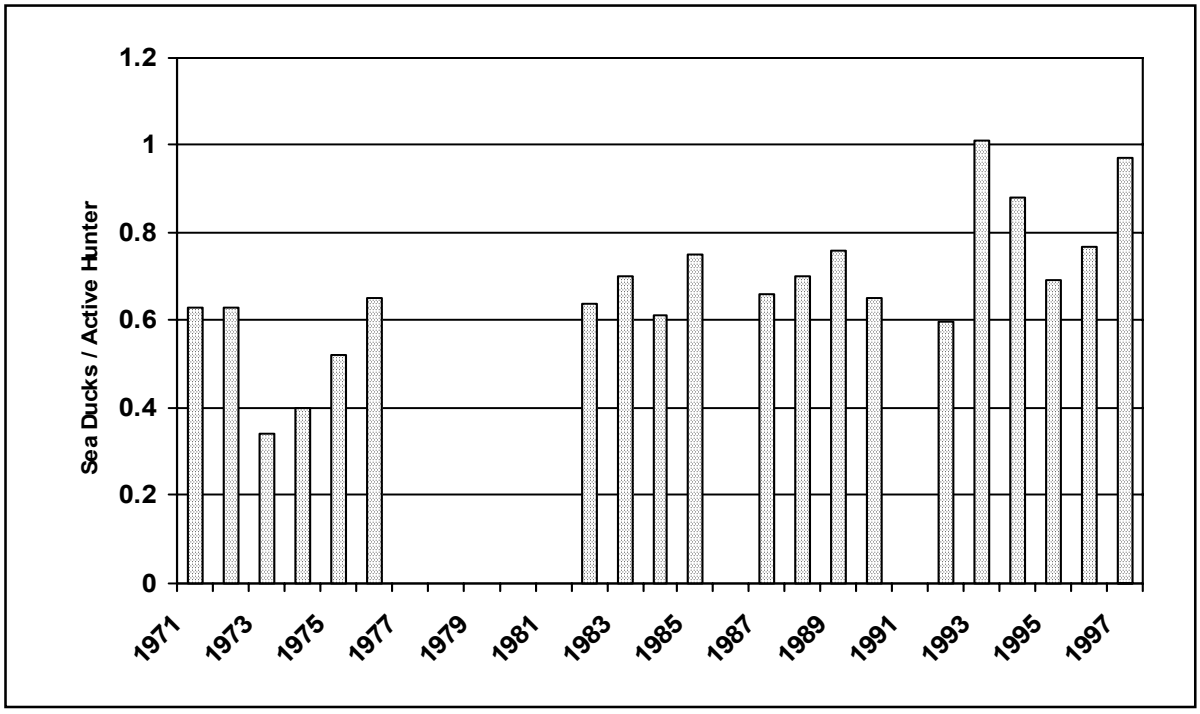


Figure 43. Average species composition of the fall/winter sea duck sport harvest in Alaska, 1966-97. (Federal Parts Collection Survey)

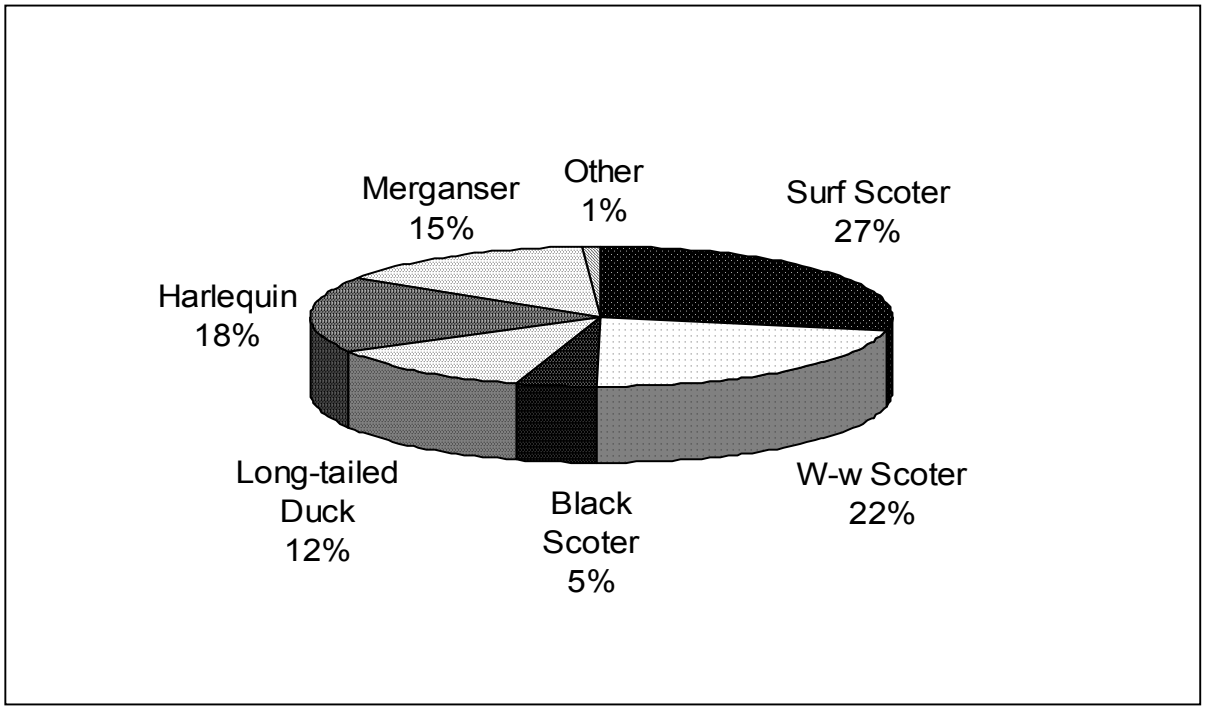


Figure 44. Average regional distribution of fall/winter sea duck sport harvest in Alaska, 1982-94. (ADF&G data)

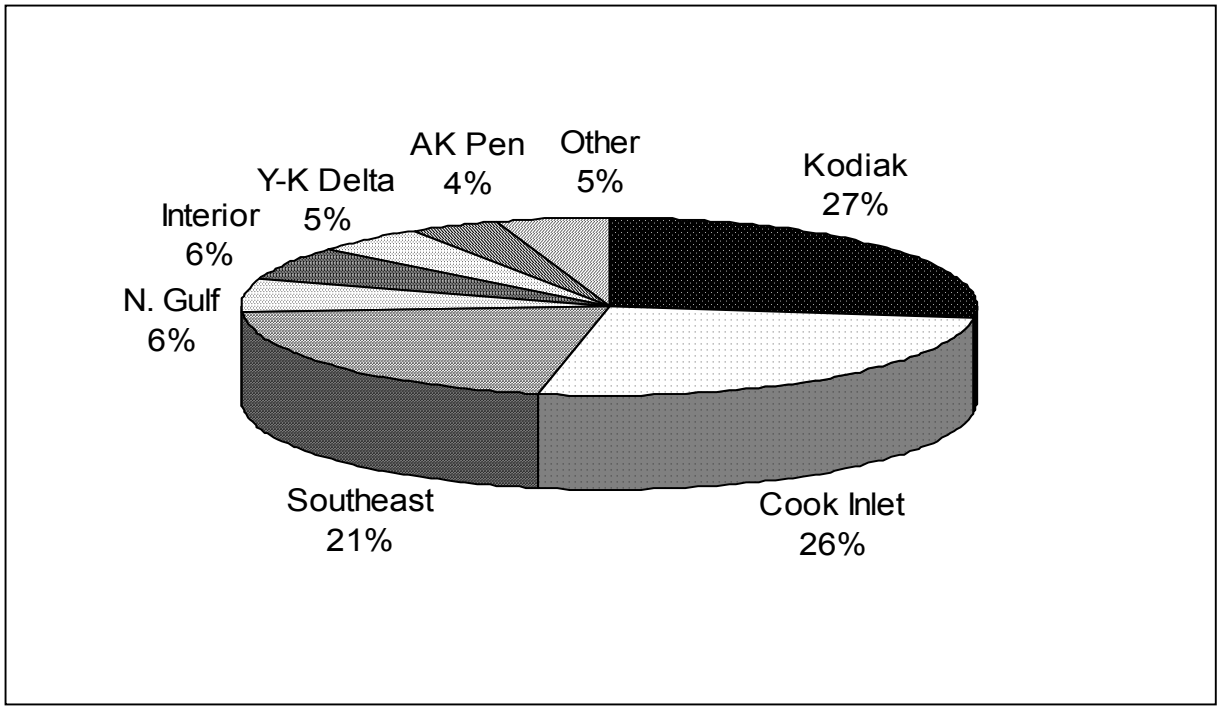


Figure 45. Seasonal proportions of annual subsistence duck harvest by region of Alaska. (Paige and Wolfe 1997)

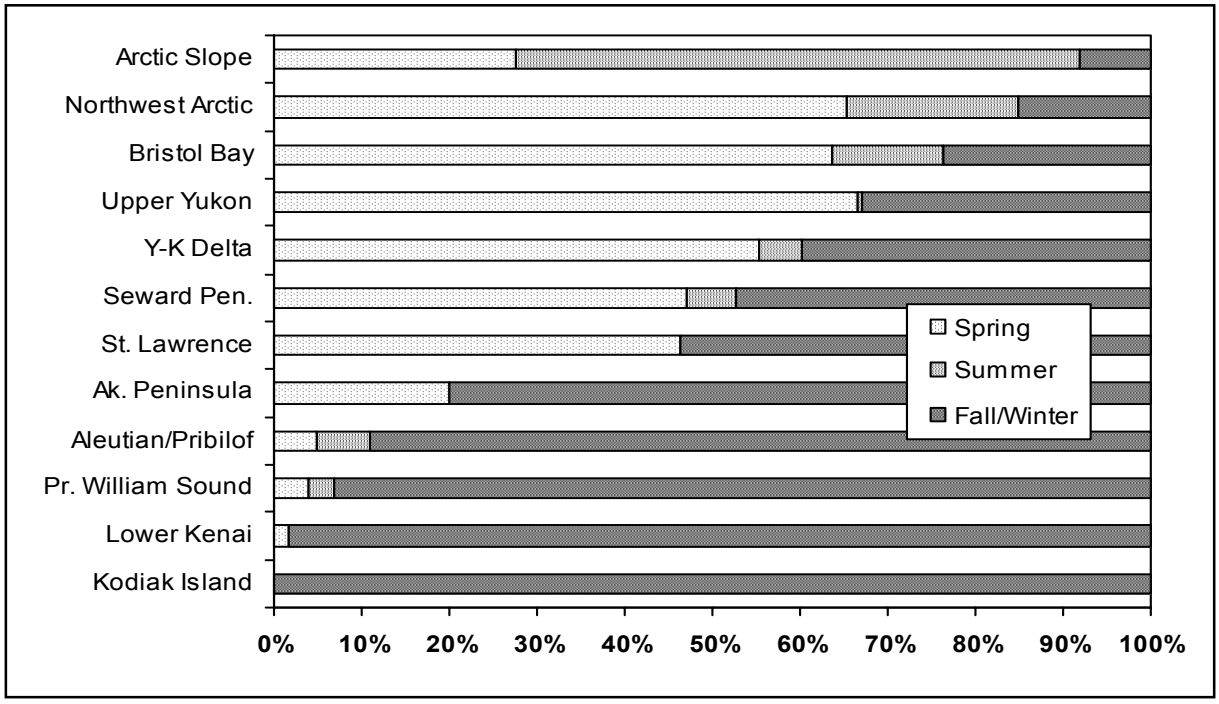
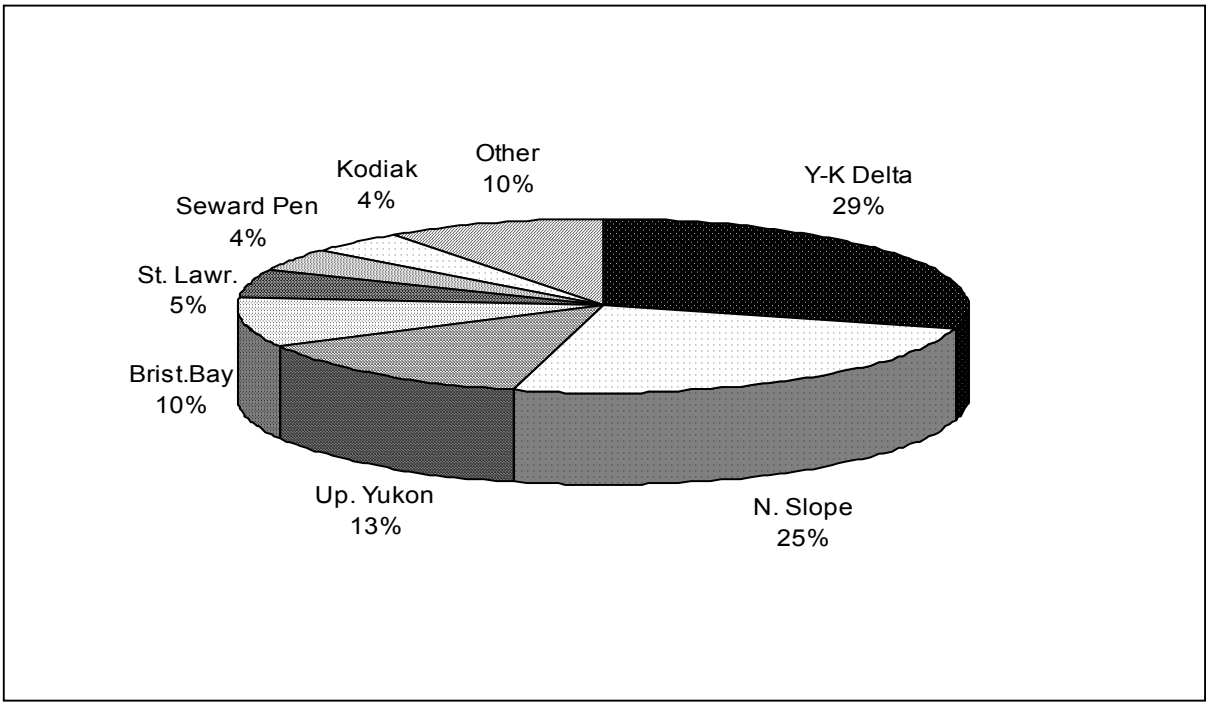


Figure 46. Regional distribution of annual subsistence sea duck harvest in Alaska. (Paige and Wolfe 1999)



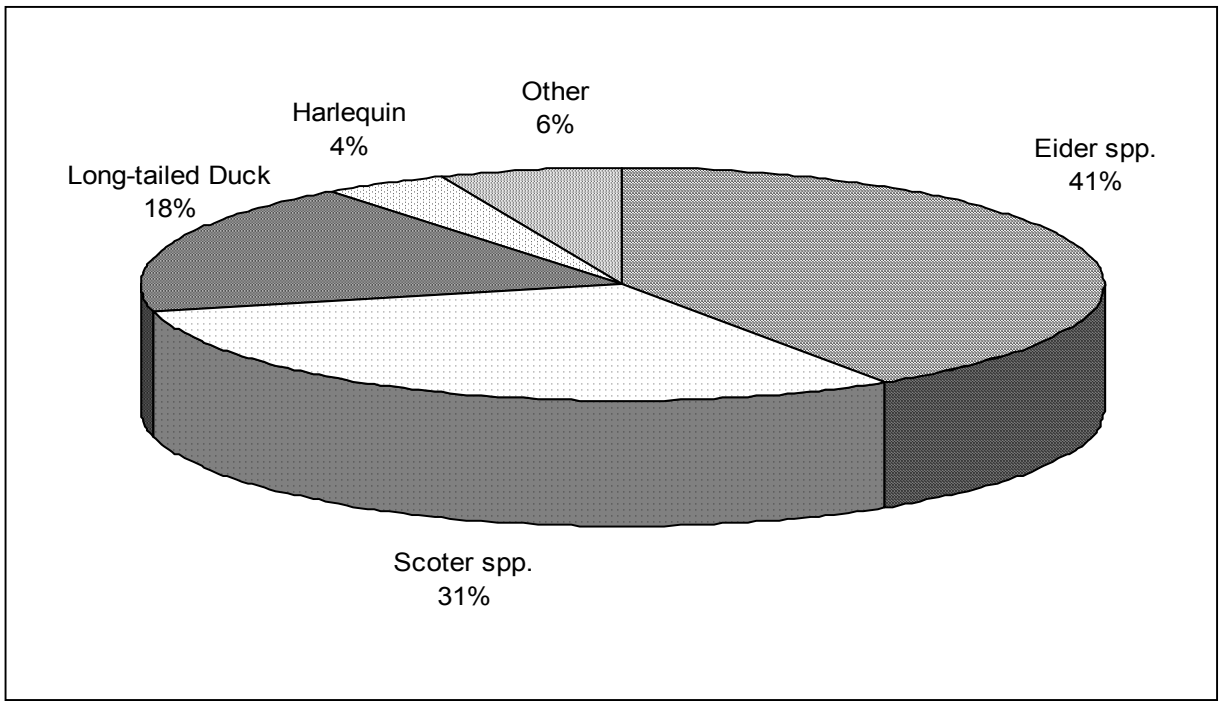


Figure 47. Species composition of annual subsistence harvest of sea ducks in Alaska. (Paige and Wolfe 1999)

Appendix I. Sea duck tasks prioritized by the Alaska Sea Duck Working Group, 1998. Numbers on left represent the number of votes received for each task. Specific tasks for spectacled and Steller's eiders are addressed in respective Recovery Plans.

General

10 Design and initiate appropriately-timed breeding pairs surveys for scoters in major breeding areas (Tanana/Kuskokwim, Yukon Flats, Bristol Bay, Yukon Delta)

5 Quantify sea duck migrations along the Beaufort Sea coastline and identify important migration corridors

8 Determine use of Beaufort Sea coastal habitats by migrating sea ducks

4 Determine use of Beaufort Sea coastal habitats by molting sea ducks

4 Determine use of Beaufort Sea coastal habitats by breeding sea ducks

9 Complete summer and winter sea duck surveys in SE Alaska

5 Determine more accurately subsistence harvests of sea ducks

5 Determine more accurately sport harvests of sea ducks

10 Identify molting and wintering areas for declining populations

3 Maintain and/or expand and improve Kodiak wintering sea duck survey

7 Examine sea duck ecology in the Gulf of Alaska:

-identify important areas and habitats for sea ducks summering, molting, and wintering in the coastal Gulf of Alaska

-transmitter birds to document movements and survival of species of concern (e.g., blsc, olds, bago)

-examine potential anthropogenic factors affecting distribution and/or survival (e.g., vessel disturbance, logging, contaminants)

5 Conduct fall molting/staging surveys, coastal YKD and Nunivak Isl. (BLSC, SUSC, WWSC, STEI primarily)

A) Seasonal use of known use areas (i.e., multiple surveys)

B) Geographic extent of known use areas (e.g., define extent of Kusko. Bay scoter molting/staging area)

C) Exploratory surveys of potential use areas (i.e., north of Cape Romanzof up to, and including, the Yukon Delta)

3 Conduct summering/molting/staging surveys, large lakes and inlets, YKD (GRSC, OLDS, GOLD primarily)

2 Develop appropriate protocols for inland water body inventory to take into account, minimally, seasonal variations in dispersion, tendency to fly, and plumage (i.e., birds are tougher to ID at this time of year)

0 Document staging and spring migration of scoters along coasts and up rivers of YKD

6 Conduct fall molting/staging surveys, Alaska Peninsula (SCOT, STEI primarily)

2 Conduct fall molting/staging surveys, Norton Sound to Beaufort Sea (OLDS, Eider, Scoter)

5 Examine ecology of molting scoters on the Alaska Peninsula (Nelson Lagoon is a convenient spot with abundant birds)

6 Potential impacts of oil industry activities (helicopter, barge, fixed-wing, boat traffic) on nesting, molting, staging, and migrating seaducks along the Beaufort Sea coast.

2 Determine effects of predation on sea duck productivity (particularly for spectacled and Steller's eiders) on the Arctic Coastal Plain.

9 Obtain comparable occurrence data for contaminants in sea ducks

5 Evaluate known and suspected impacts of contaminants on sea ducks

7 Investigate physiological basis for effects of metals on sea ducks

3 Investigate physiological basis for effects of oil on sea ducks

0 Engage North Slope Borough as a cooperator in projects and surveys on the North Slope.

2 Conduct a series of public meetings in coastal villages and other appropriate locations to update people on seaduck status, what is being done, what needs to be done, to understand their concerns, and gather additional information .

4 Develop a public information campaign in Alaska for sea ducks

1 Delineate molting/wintering reference areas, design and conduct surveys to monitor trends.

Black Scoter

9 Determine molting and wintering areas of YKD and Bristol Bay Black Scoters (for declining vs stable populations if possible)

14 Breeding ecology, population structure, and demography of black scoters on the YKD (3.5-4.5 birds/sq.mi.) (for declining vs stable populations if possible)

-find nesting birds and collect basic productivity data on YKD
-implant satellite transmitters to document molting and wintering sites
-estimate survival rates (perhaps via molt recaptures, or through intensive capture and radio work on wintering areas)
-determine recruitment

4 Breeding ecology of BLSC on the lower Alaska Peninsula (13-22 birds/sq.mi.)

0 Breeding biology of black scoter on Selawik

7 Aerial breeding pair survey for BLSC (and GRSC?) later in June than current surveys to provide more reliable index of breeding population on YKD (and elsewhere?)

4 Initiate studies of ecology and survival of known molting populations.

White-winged Scoter

7 Determine breeding areas for white-winged scoters

1 Determine what cohort or geographic population of white-winged scoters are involved in SE Alaska die-offs.

2 Determine physiological effects of metals identified in white-winged and surf scoters that died off Cape Yakataga

1 Breeding biology

Surf Scoter

4 Determine reproductive ecology and survival

6 Determine range and movements

Harlequin Duck

5 Determine breeding areas for harlequin ducks and Barrow's goldeneyes wintering in PWS.

1 Examine breeding biology of harlequin ducks in Kilbuck/Kuskokwim Mountains

2 Maintain annual breeding pair and brood surveys of harlequin ducks on established routes on YDNWR and Togiak NWR (and Becharof?)

4 Determine wintering areas of harlequin ducks breeding in southwest Alaska

Oldsquaw

15 Determine wintering and molting areas of YKD and NS oldsquaw breeding populations

3 Determine effects of contaminants in breeding oldsquaw on YKD and NS

3 Improve interpretation of existing breeding pair data sets for oldsquaw

20 Examine breeding ecology, population structure, and demography of oldsquaws:
-find nesting birds and collect basic productivity data on YKD and NS
-implant satellite transmitters to document molting and wintering sites
-estimate survival rates (perhaps via molt recaptures, or through intensive capture and radio work on wintering areas)
-determine recruitment

5 Gather further information on lead poisoning

King Eider

4 Continue to cooperate with CWS in KIEI staging, migration, and wintering projects (satellite telemetry and follow-up flights).

4 Evaluate and improve migration counts of King eiders at Barrow to improve estimates of productivity and population

1 NPRA NE Planning Area: King eiders: habitat selection, distribution, density, site fidelity, productivity, molting areas.

1 Examine physiological effects of oil.

7 Evaluate status and trend information for NS birds (ABR, Troy, Larned, King data).

3 Conduct studies of production and survival on NS.

6 Determine at sea distribution of NS breeders during non-breeding season.

Common Eider

6 Summarize available information on nesting productivity and geographic variability in productivity.

5 Continue mark recapture studies of adult female survival at multiple locations.

2 Estimate breeding propensity (% of hens attempting breeding in a given year) (declining vs stable populations if possible)

1 Estimate recruitment (mark ducklings). (declining vs stable populations if possible)

0 Estimate survival. (declining vs stable populations if possible)

7 Evaluate validity of YKD COEI breeding population estimates and, if inadequate, devise appropriate survey (do same for NS/ACP/ BS/BI population)

4 Determine population dynamics (survival, recruitment) in declining and stable populations.

6 Determine molting and wintering areas of declining and stable populations.

Barrow's Goldeneye

9 Examine population structure and demography of Barrow's Goldeneyes:
-in strata with high numbers or densities of goldeneyes, establish species composition
-determine breeding distributions of BAGOs from important wintering areas
-estimate survival rates via radios in winter and mark/recapture for molters
-estimate productivity

1 Determine breeding areas for Barrow's Goldeneyes wintering in PWS.

Scaup

2 Document role of contaminants in life history, including breeding/wintering areas and migration routes.

7 Evaluate all surveys to determine adequacy in documenting the population on breeding/wintering areas and migration routes, focusing on developing a method to separate greaters/lessers on breeding grounds, improving timing to prevent double counting, and standardizing winter surveys.

6 Initiate banding program to develop a population model and utilize satellite transmitters on breeding or wintering areas to tie breeding/molting areas for greaters/lessers to their respective migration, wintering, and harvest areas.

1 Document productivity through breeding biology study, most important for boreal forest and prairie/parkland populations.

1 Document productivity through breeding biology study, most important for coastal tundra populations.

3 Examine duckling survival (It appears that gulls may concentrate on late duck broods like oldsquaw and greater scaup)

1 Examine recruitment (marking ducklings).

1 Determine physiological effects of contaminants